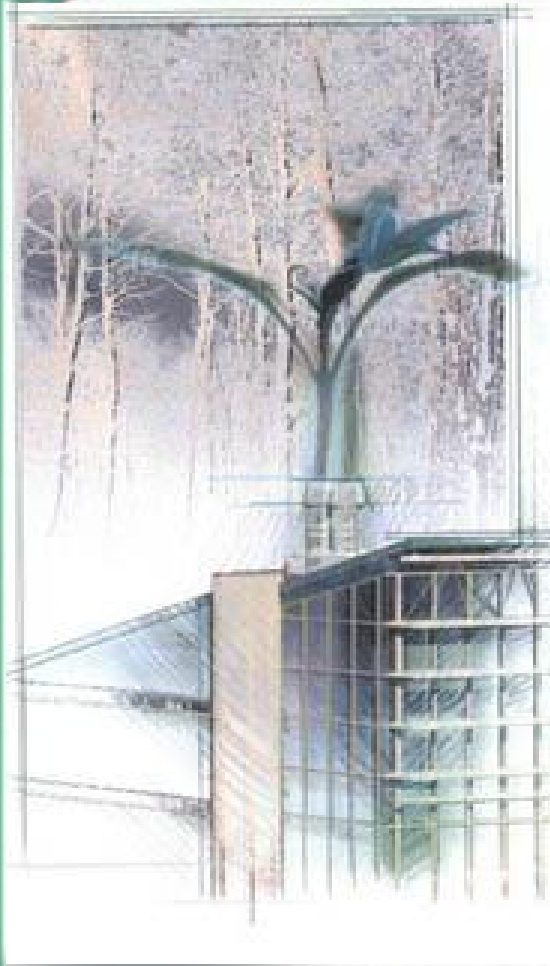




Supply Chain Environmental Management, Green Purchasing and Supply Chain Archeology

Today's Presentation

- SCEM/Green Purchasing
- Current SCEM/GP Research
- EPP/SCEM Projects
- Supply Chain Archeology
- Renewable Energy/BioBase/Mass





Global Supply Chain Environmental Management/ EPP Social, Ethical and Economic Impact Assessments; LCA/ C; Performance-Based Contracting; EPP Performance Assessments; Procure-to-Waste Assessments/ Modeling; eProcurement/ EPP System Integration

1980 – 1986; USAF – Purchasing Division

1986 – 1988; St. Peter's Medical Center - Purchasing

1988 – Present; Rutgers – Purchasing-Oracle-EcoComplex:

- ***Rutgers New Brunswick (1988 – 1995)***
- ***Rutgers Camden (1995 – 1999); Camden-NJ State Finance Team***
- ***RU/Oracle eProcurement Implementation Team Manager (1999-2002)***
- ***Rutgers New Brunswick (2002 – 2004)***
- ***Rutgers EcoComplex (2004 - ☺)***



Rutgers, The State University of New Jersey



Chartered in 1766, land-grant institution, and a state university.

50,000 students on campuses in Camden, Newark, and New Brunswick/Piscataway

850 Buildings



THE STATE UNIVERSITY OF NEW JERSEY
RUTGERS
COOK COLLEGE



Rutgers EcoComplex



**education, research
and outreach on
environmental
issues, specifically
those related to
energy, water, solid
waste and land use.**

**The EcoComplex is Rutgers
University's Environmental
Research and Extension Center.**

*hub of environmental activity in
the Region on a wide front of
environmental issues including
renewable energy and related
agricultural issues*



Kevin Lyons, Ph.D.
Rutgers EcoComplex
Rutgers University, Cook College, NJAES
Bordentown, New Jersey, USA

THE STATE UNIVERSITY OF NEW JERSEY
RUTGERS



Supply Chain Environmental Management- Green Purchasing

Life-cycle model for products and services

Integrating Global, Economic, Social, Environmental Criteria



Integrating environmental factors into the procurement process and policies, using the following tools and/or methods:

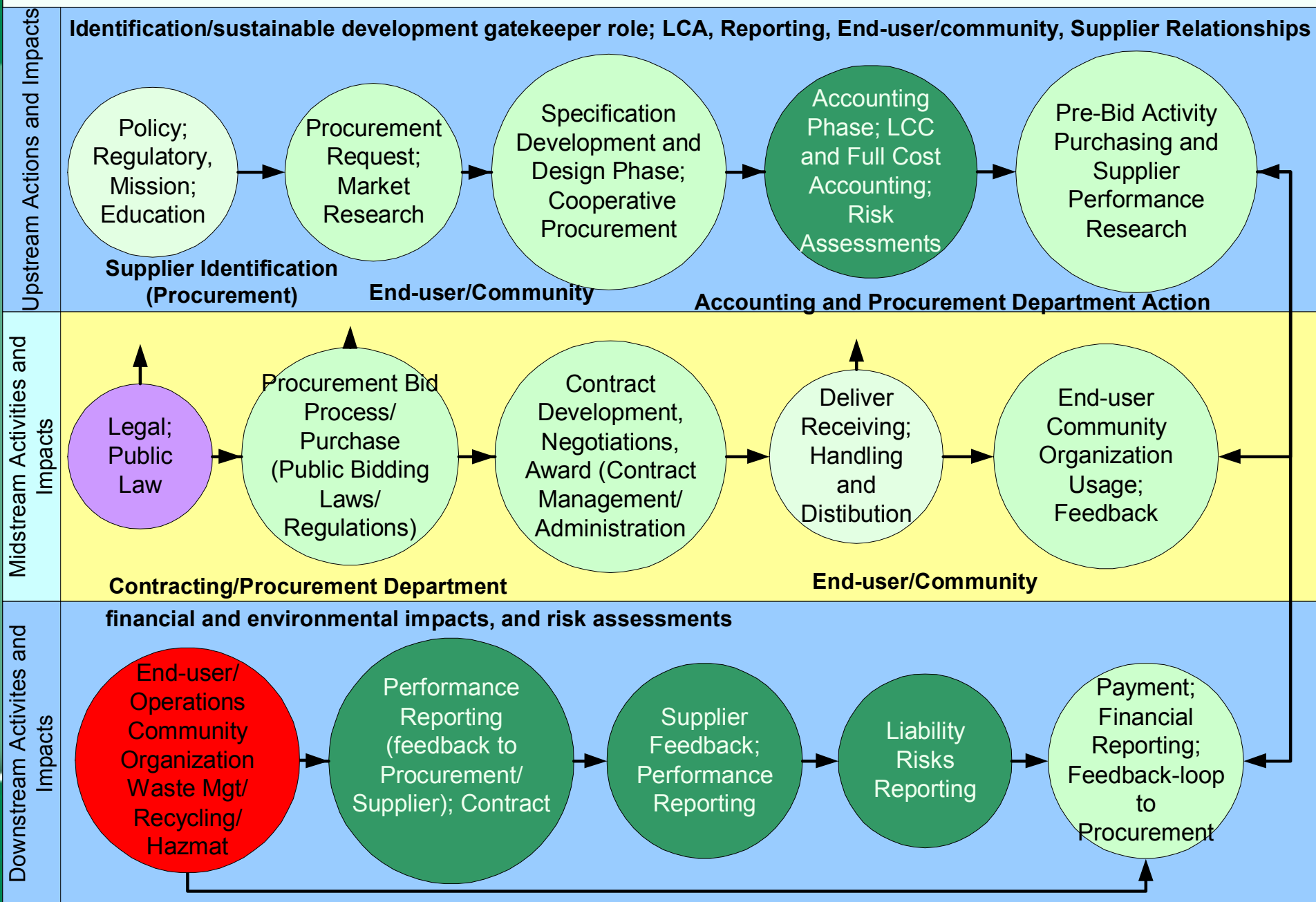
Pollution Prevention - Life-Cycle Perspective - Natural Resource Protection



Why Integrate Sustainability into SCEM?

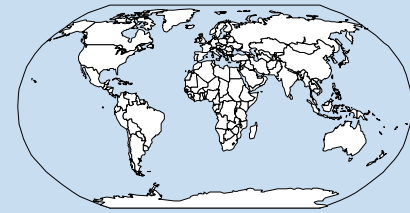
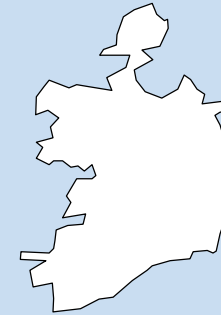
- Procurement/Supply Chain Mgt Integration (Best Practice)
- Develop and sustain *both* supply and demand for greener goods and services
- Reduce organization's environmental footprint, liability and risks (*e.g. chain of custody issues*)
- Help meet environmental goals through markets rather than mandates
- Development of standard Statement of Work and Contract Templates for internal/external use.

EPP/SCEM Performance-Based/Economic Analysis/CBA Research



Greening the Government, EU EcoPurchasing
Policy, Transportation, Greenhouse Gas Legislation

Belfast, New Parliment EcoPurchasing
Policy Implementation Project



England, Wales, Scotland
(WWF-UK, IDeA, Edinburgh, Cardiff, Glasgow)



Coffee, Rubber, Wood, Fuel,
Textiles, Transportation,
Packaging, Waste
Management, Corporation
Responsibility (Colombia,
Peru, Brazil, Amazon)



WWF-UK, RU
Contracts



THE STATE UNIVERSITY OF NEW JERSEY
RUTGERS
COOK COLLEGE

Supply Chain Environmental Management (SCEM) Research

... working with governmental agencies, suppliers and organizations to improve the environmental performance of the products or manufacturing processes.

1. Researching and then provide guidance for governmental agencies, suppliers and organizations to implement, and possibly certify, environmental management programs or systems.
2. Researching and then educating governmental agencies, suppliers and organizations about materials use, pollution prevention, and providing training and information to build suppliers' environmental management capacity.



- Research which leads towards suppliers' developing new materials, parts or processes to address environmental concerns.
- Auditing and Reporting on suppliers' compliance status or environmental management practices.
- Procure-to-Waste Research Integrating supply chain mgt with environmental mgt (Fostering Technology Downstream Development).



- eProcurement, EMS, and EPP Integration
 - Electronic Supplier Data Transfer/Interface
 - Waste (packaging), MSDS Data (Hazardous Materials), Instant Waste Data. Logistics (Capital Equipment), CBA, Green Specifications
 - Reporting 'real-time' purchase-to-waste statistics
- Shared Statement of Work Database (Integrated into eProcurement System)
- Commodity/Resource LCA Tracking and Mapping (per Commodity)
- iProcurement Requisition Green Procurement Preference (for end-users)
- On-going EcoComplex; R&D Government/Industry Participation



THE STATE UNIVERSITY OF NEW JERSEY
RUTGERS
COOK COLLEGE

Statement of Work and Contracts (2004-2005)



WACHOVIA

Janitorial Services
Landscape Services

ORACLE



Highland Park, NJ

Waste Trucks
HVAC Systems
Solar Panels; City Hall
Janitorial Services
Rock Salt



Capital Construction
Computer Systems

Rutgers The State University of New Jersey

30 Major Contracts



Kevin Lyons, Ph.D.
Rutgers EcoComplex
Rutgers University, Cook College, NJAES
Bordentown, New Jersey, USA

THE STATE UNIVERSITY OF NEW JERSEY
RUTGERS

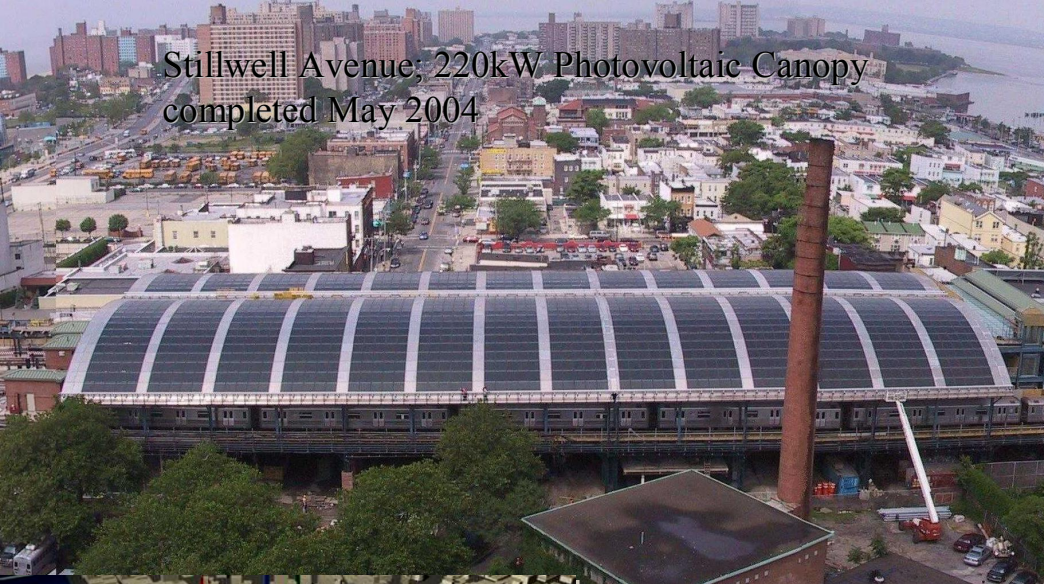


THE STATE UNIVERSITY OF NEW JERSEY

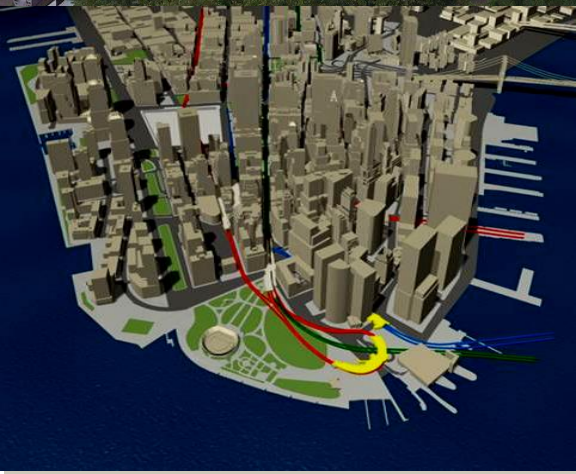
RUTGERS
COOK COLLEGE

ECOCOMPLEX

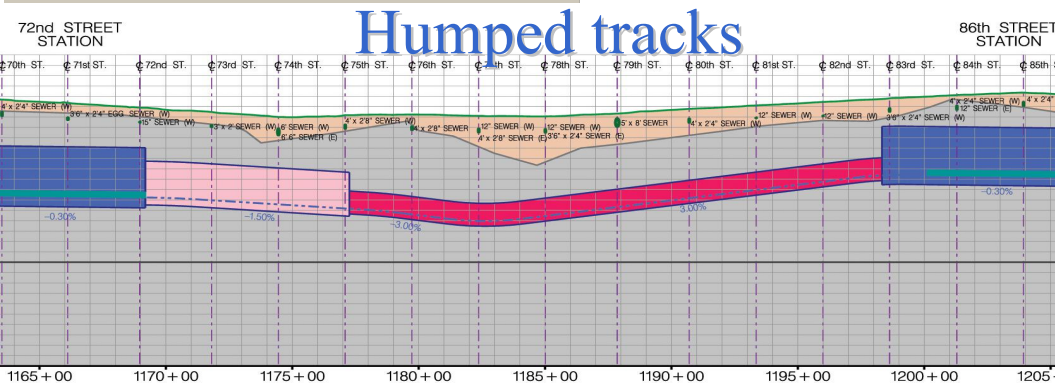




Stillwell Avenue; 220kW Photovoltaic Canopy completed May 2004

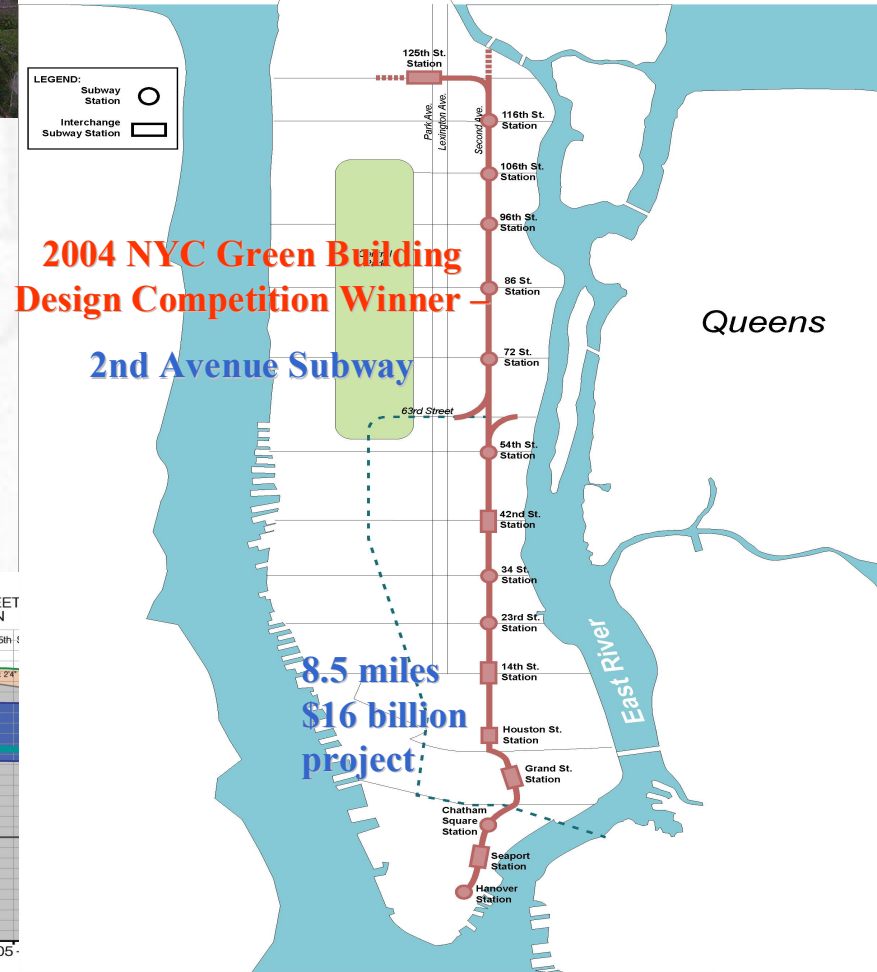


Gateway to Lower Manhattan
Serves ferries and buses for Staten Island access and connectivity
Major Green Design objectives



2004 NYC Green Building Design Competition Honorable Mention – New Corona Maintenance Shop

- 30% better than code for energy efficiency
- natural ventilation and natural day lighting
- Renewable power– PV's and fuel cells
- Harnessing rain water for washing trains
- Selection of eco-friendly building materials
- Waste Management, recycling, & ULSD
- Aiming for LEED Silver certification



Fulton Street Transit Center





THE STATE UNIVERSITY OF NEW JERSEY
RUTGERS
COOK COLLEGE

University of Oxford

Rutgers The State University of New Jersey



Supply Chain Archeology?

*A Purchaser's
Perspective On:*

*Understanding the
History, Behavior,
Movement and
Business of Waste;*



*Consumerism, Consumption and the Linking and Integrating Solid
Waste into the Supply Chain Management Process*



Kevin Lyons, Ph.D.
Rutgers EcoComplex
Rutgers University, Cook College, NJAES
Bordentown, New Jersey, USA

THE STATE UNIVERSITY OF NEW JERSEY
RUTGERS

September 26, 2003

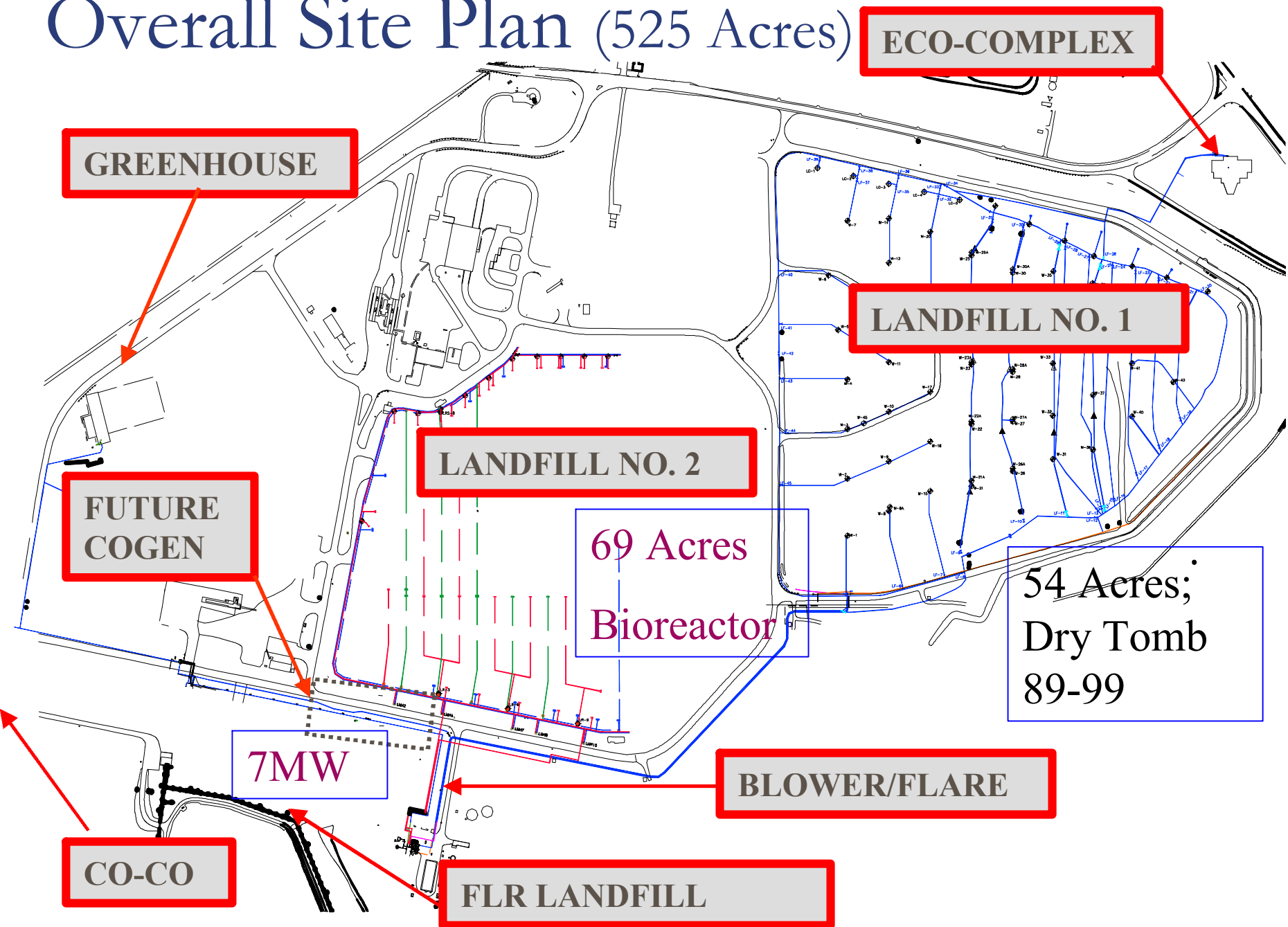


February 23, 2005





Overall Site Plan (525 Acres)





Methodology

- Tracking consumer goods from landfill back to purchase and manufacture and sourcing of raw materials. Identify retail distributive patterns through to point of purchase and eventual use and disposal of consumer goods (On-site retail visitations, micro-chip technology).
- Establish if and how this data might benefit institutional procurement policy and personal purchasing habits. This could provide a valuable educational resource for almost any level, potential spin off use for informing local authority policy.



Data Collection and Modeling

Solid Waste Characterization/Identification Process (data entry)

Product/packaging identification and characterization

Consumption-behavioral pattern modeling

Behavioral patterns and shifts based on economic conditions (if any)

New Technology (feedstock for new waste management innovation)

Investigating New Packaging/Labeling Schemes (waste rating)



Renewable Energy

Acrion LFG to LNG Project

Acrion, Rutgers EcoComplex, Burlington County,
Volvo/Mack Truck, Waste Management, Air Products



WASTE MANAGEMENT

POWERED BY CLEAN NATURAL GAS
PRODUCED FROM
RECYCLED LANDFILL REFUSE

www.wm.com











Research Demonstration

Hydroponic Greenhouse/Aquaculture Tanks

BioMass/BioBase Research (product, market, economic analysis)



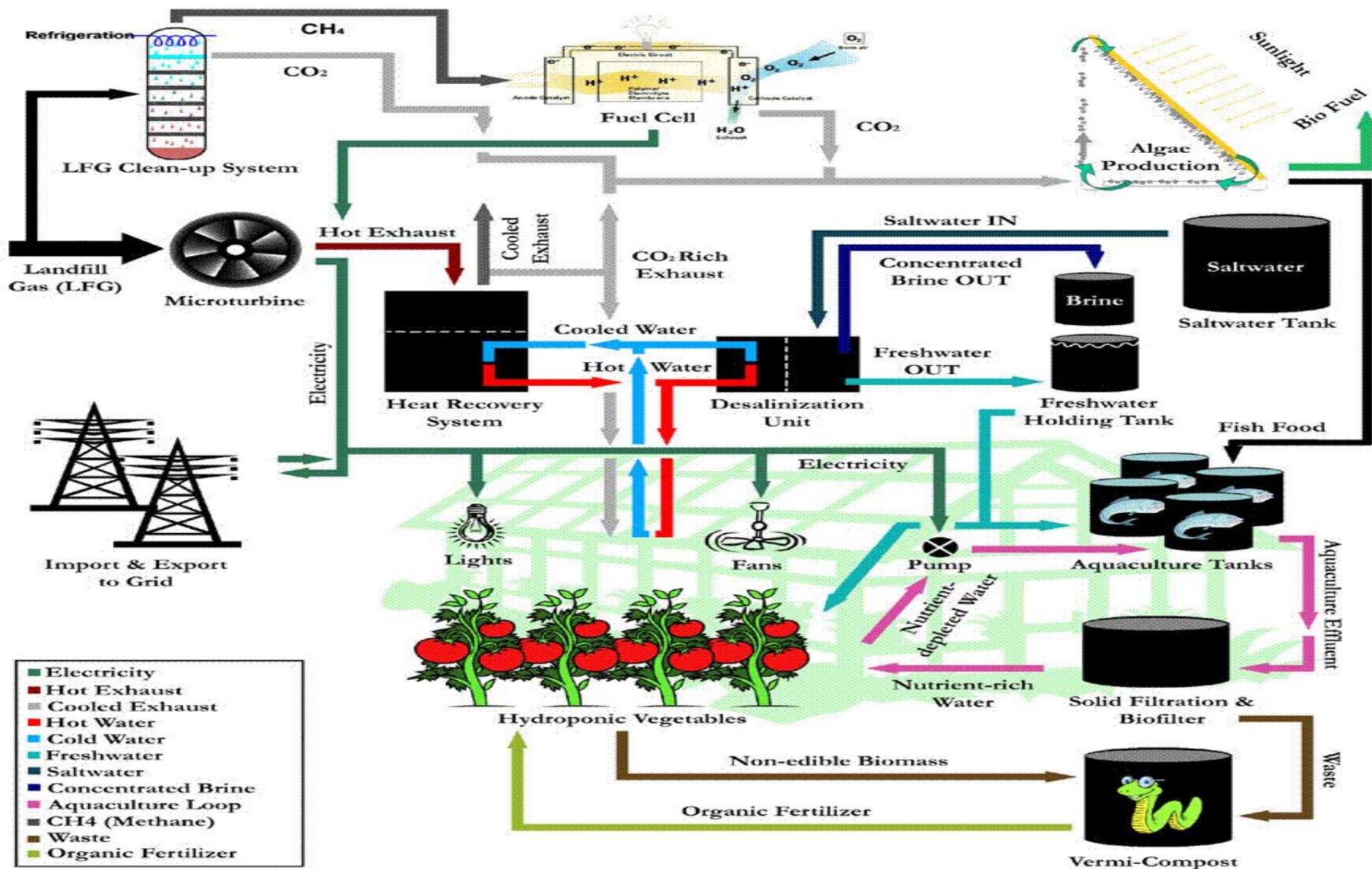














THE STATE UNIVERSITY OF NEW JERSEY
RUTGERS
COOK COLLEGE

Community Partnerships & Opportunities Local Procurement/Cooperative Purchasing



THE LAWRENCEVILLE SCHOOL

Local Community, National/International, Government, NGO, Higher Education, Private Sector, On-Campus Research, K-12 (Lawrenceville School, Highland Park), NYSE, Purchasing Associations (NAEB, ISM, COUP)



Kevin Lyons, Ph.D.
Rutgers EcoComplex
Rutgers University, Cook College, NJAES
Bordentown, New Jersey, USA

THE STATE UNIVERSITY OF NEW JERSEY
RUTGERS



EPP/SCEM @ EcoComplex 2005 Highlights

- Oil Base Product Pricing Analysis
- National Research Collaboratives (BioMass)
- Quadruple Bottom Line Reporting (Multi-sector)
- **NYSE Green Purchasing Data/Technology Forecasting Project**
- MTA-Lower Manhattan EPP/EMS Implementation Project
- NJ K-12; EPP and New Construction/Renovation
- EPP and the Healthcare/Insurance/Banking Sector
- EcoComplex EPP Continuing Professional Education Series
International/National Paper Presentations
- Scientific Journal Submissions
- More EPP Training/Performance